

An apparatus for monitoring vapor phase polycyclic aromatic hydrocarbons in a high-temperature environment has an excitation source producing electromagnetic radiation, an optical path having an optical probe optically communicating the electromagnetic radiation received at a proximal end to a distal end, a spectrometer or polychromator, a detector, and a positioner coupled to the first optical path. The positioner can slidably move the distal end of the optical probe to maintain the distal end position with respect to an area of a material undergoing combustion. The emitted wavelength can be directed to a detector in a single optical probe 180° backscattered configuration, in a dual optical probe 180° backscattered configuration or in a dual optical probe 90° side scattered configuration. The apparatus can be used to monitor an emitted wavelength of energy from a polycyclic aromatic hydrocarbon as it fluoresces in a high temperature environment.